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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/377,667	08/19/1999	HIROMU MUKAI	15162/01020	8179

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EXAMINER	
AGGARWAL, YOGESH K	

ART UNIT	PAPER NUMBER
2615	

DATE MAILED: 11/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/377,667	MUKAI, HIROMU	
	Examiner	Art Unit	
	Yogesh K. Aggarwal	2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *29 August 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-24* is/are pending in the application.

4a) Of the above claim(s) *4-7,11-14,16 and 19-22* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,8-10,15,17,18,23 and 24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 08/29/2005 has been entered.

Response to Arguments

2. Applicant's arguments with respect to claims 1, 8, 15, 17 and 18 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1, 3, 8, 10, 15, 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (US Patent # 5,260,826).

[Claim 1]

Wu discloses an image pickup device (figure 3) comprising an image sensor (24) having circular light receiving portions arranged in a matrix, and microlenses (26) disposed in correspondence with said light receiving portions (24), said light receiving portions and said microlenses being formed integrally with each other (Figure 3 clearly shows a microlens assembly and pixels

formed integrally with each other); and an image input optical system (14 and 16) for forming an image on said image sensor, said image input optical system including a diaphragm (16). The Examiner is defining a horizontal and vertical direction in the plane of the diaphragm 16 as X and Y directions and similarly in the plane of pixels. Therefore diaphragm 16 has a shape in a vertical direction that coincides with a shape of said light receiving portions of said image sensor. Wu further teaches that central diaphragm 16 blocks the light in the central portion (col. 7 lines 8-16) and light from any point outside the focal plane 22 does not register any light on the pixel portions (col. 7 lines 17-53). It would be obvious that said diaphragm and the light receiving portions of said image sensor are in a conjugate relationship (as defined in the specification, conjugate relationship exists because of a working of the microlenses).

Wu fails to disclose rectangular light receiving portions. However Official Notice is taken of the fact that it is notoriously well known to have rectangular pixel and similar in order to have an increased packing density of a large area array of pixels resulting in optimized utilization of real estate so that maximized number of pixels are constructed within any given unit area, and accordingly, provides for improved resolution of a large area array.

[Claim 3]

It would be inherent to have charge transferring portions adjoining said light receiving portions in order to transfer the charge outside and form an image.

[Claim 8]

In regards to claim 8 see Examiners notes on the rejection of claim 1. Wu discloses a lens 14.

[Claim 10]

See claim 3 for examiner's rejection.

[Claims 15, 17, 18]

In regards to claims 15, 17 and 18 see Examiners notes on the rejections above.

5. Claims 2, 9, 23 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (US Patent # 5,260,826) in view of Karasaki et al. (US Patent # 4,908,504).

[Claims 2 and 9]

Wu teaches the limitations of claims 1 and 8 but fails to teach an oval shaped aperture that has edges, which are circular along the horizontal direction and linear along the vertical direction.

However Karasaki et al. teaches an oval shaped aperture (e.g. A1b or A2b in figure 4) that has edges, which are circular along the horizontal direction and linear along the vertical direction in order to increase the illumination on the CCD.

Therefore taking the combined teachings of Wu and Karasaki, it would be obvious to one skilled in the art to have been motivated to have an oval shaped aperture that has edges which are circular along the horizontal direction and linear along the vertical direction in order to increase the illumination on the CCD thereby to lower the minimum limit of luminosity (col. 5 lines 42-48).

[Claims 23 and 24]

Wu teaches the limitations of claims 1 and 8 but fails to teach a circular shaped diaphragm, said circular shape decided in accordance with the effective aperture of the image input optical system. However Karasaki et al. teaches an oval shaped aperture (e.g. A1b or A2b in figure 4) that has edges, which are circular along the horizontal direction and F-number (ratio of focal length of the lens to its effective aperture) that is determined by the respective values of outermost intervals (col. 5 lines 32-37).

Therefore taking the combined teachings of Wu and Karasaki, it would be obvious to one skilled in the art to have been motivated to have an aperture that has edges which are circular along the horizontal direction said circular shape decided in accordance with the effective aperture of the image input optical system in order to have the illumination of the CCD sensor to be increased thereby resulting in a clear image.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yogesh K. Aggarwal whose telephone number is (571) 272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

6. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on (571)-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

7. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YKA
November 9, 2005

DAVID L. OMETZ
SUPERVISORY PATENT
EXAMINER